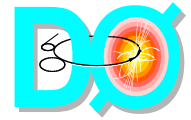


fFermilab

DZero Alarm System

Geoff Savage
EPICS Collaboration
Meeting
15 November 2000

Introduction

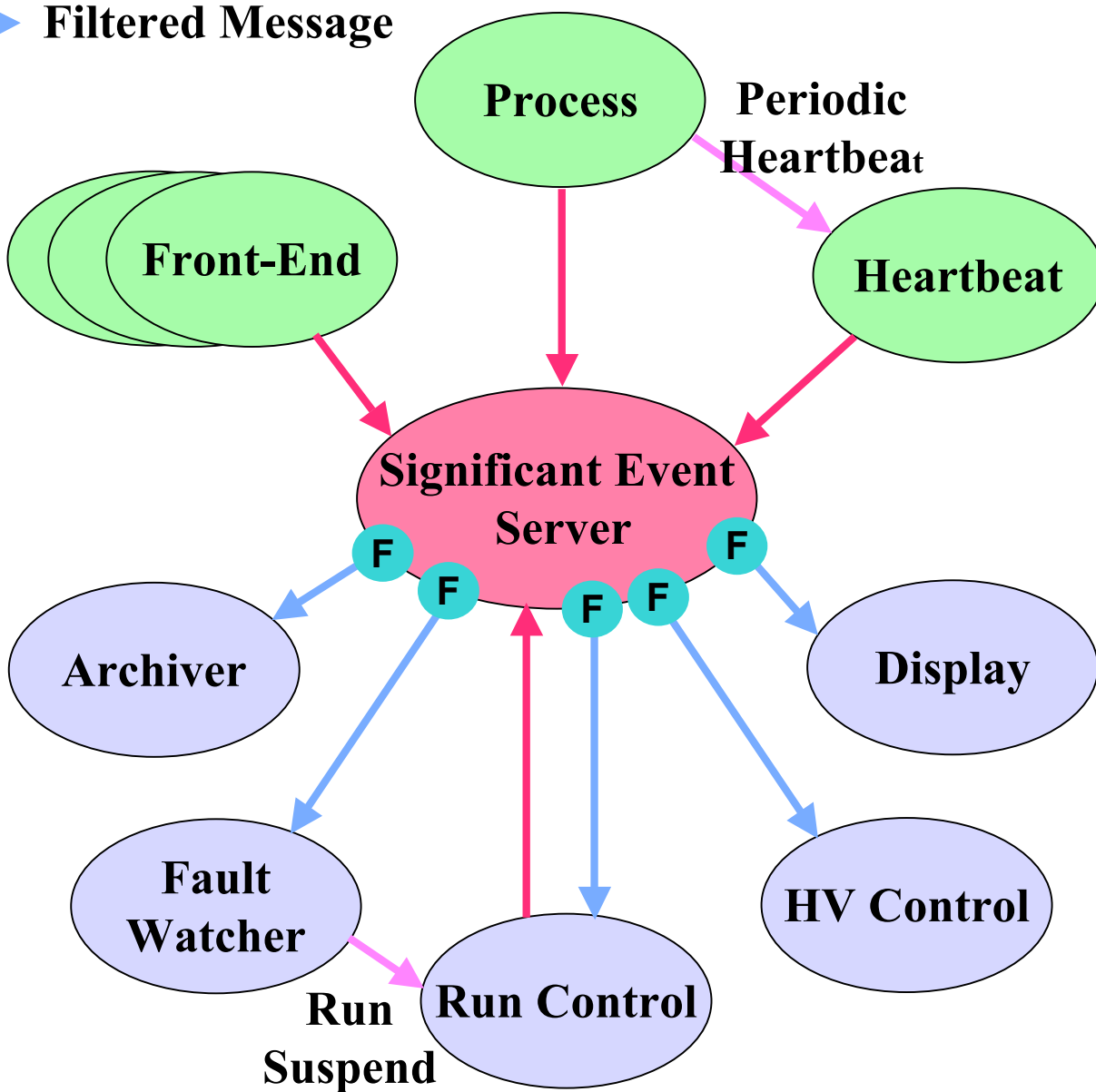


- Significant event system
 - ◆ Collect and distribute messages for
 - Alarms
 - DAQ state transitions
 - ◆ Maintains a snap shot of the current DAQ state
 - ◆ Client/server architecture
 - ◆ Message receiver clients
 - Filters in server restrict messages sent
 - Filter dimensions
 - name, host, priority, severity, status,

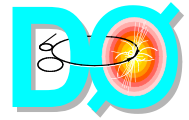
Significant Event System



- F** Filter
- SE Message
- Filtered Message



SES Features

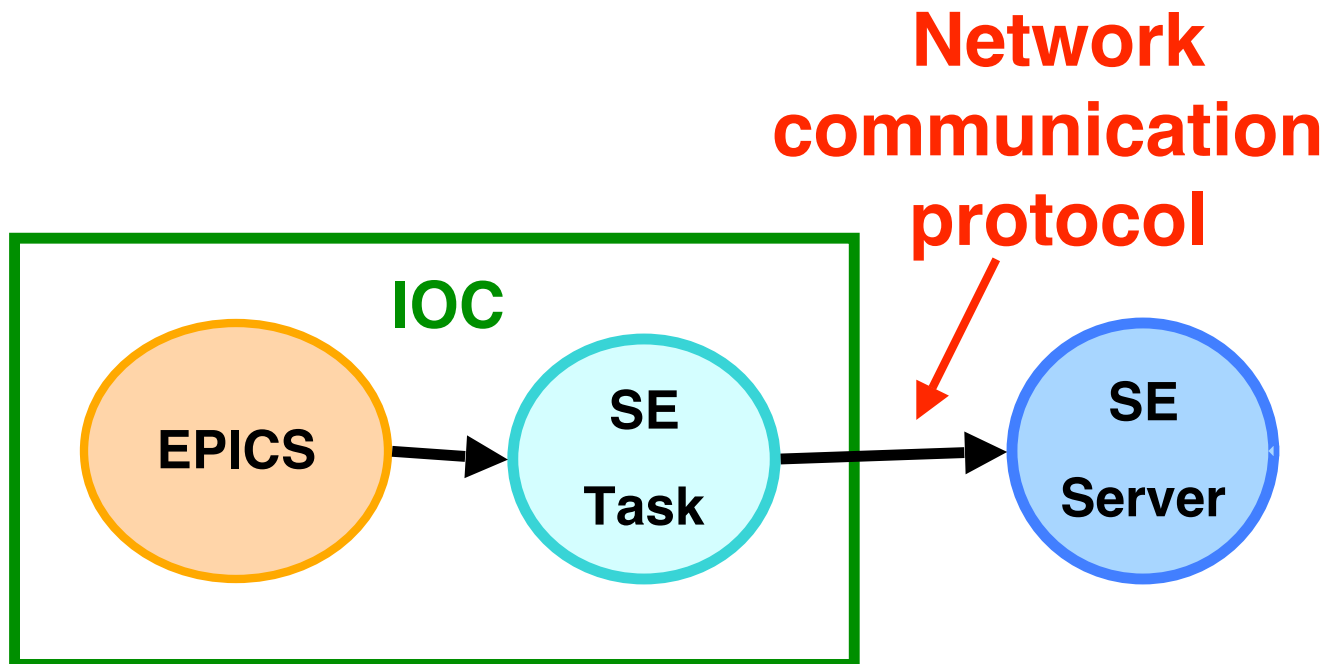


- IOCs are one of many sender clients
- Filtering
- Receiver clients receive the current state at startup
 - ◆ State stored in server
- Archive messages for review offline
 - ◆ Help in data analysis
 - ◆ Look for trends

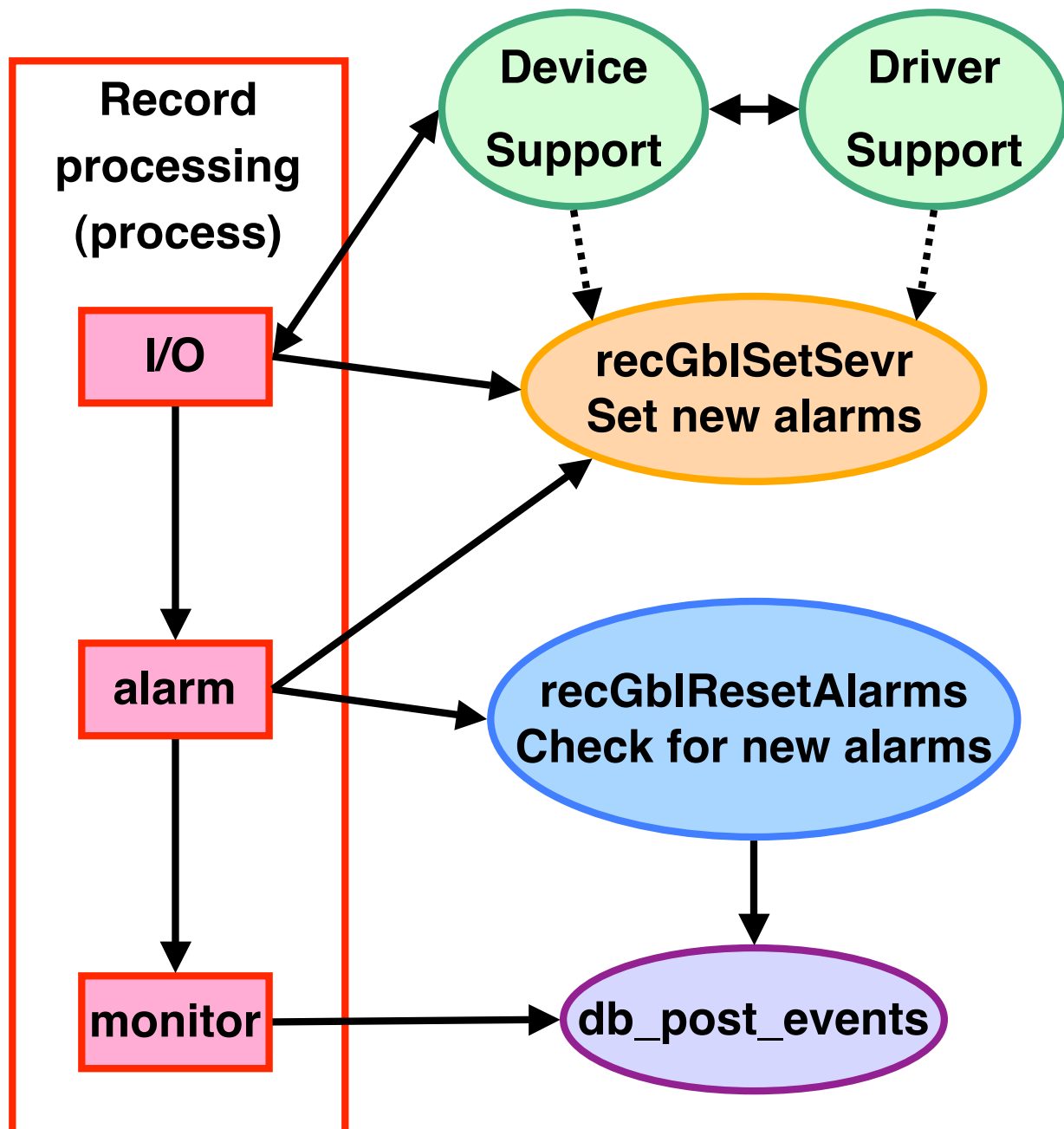
Design



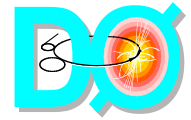
- Trap EPICS alarms
 - ◆ Use an external hook
 - ◆ R3.13.1.1, vxworks
- SE task
 - ◆ Creates SE alarm messages using info from EPICS
 - ◆ Sends messages to SE server



Existing EPICS Alarms

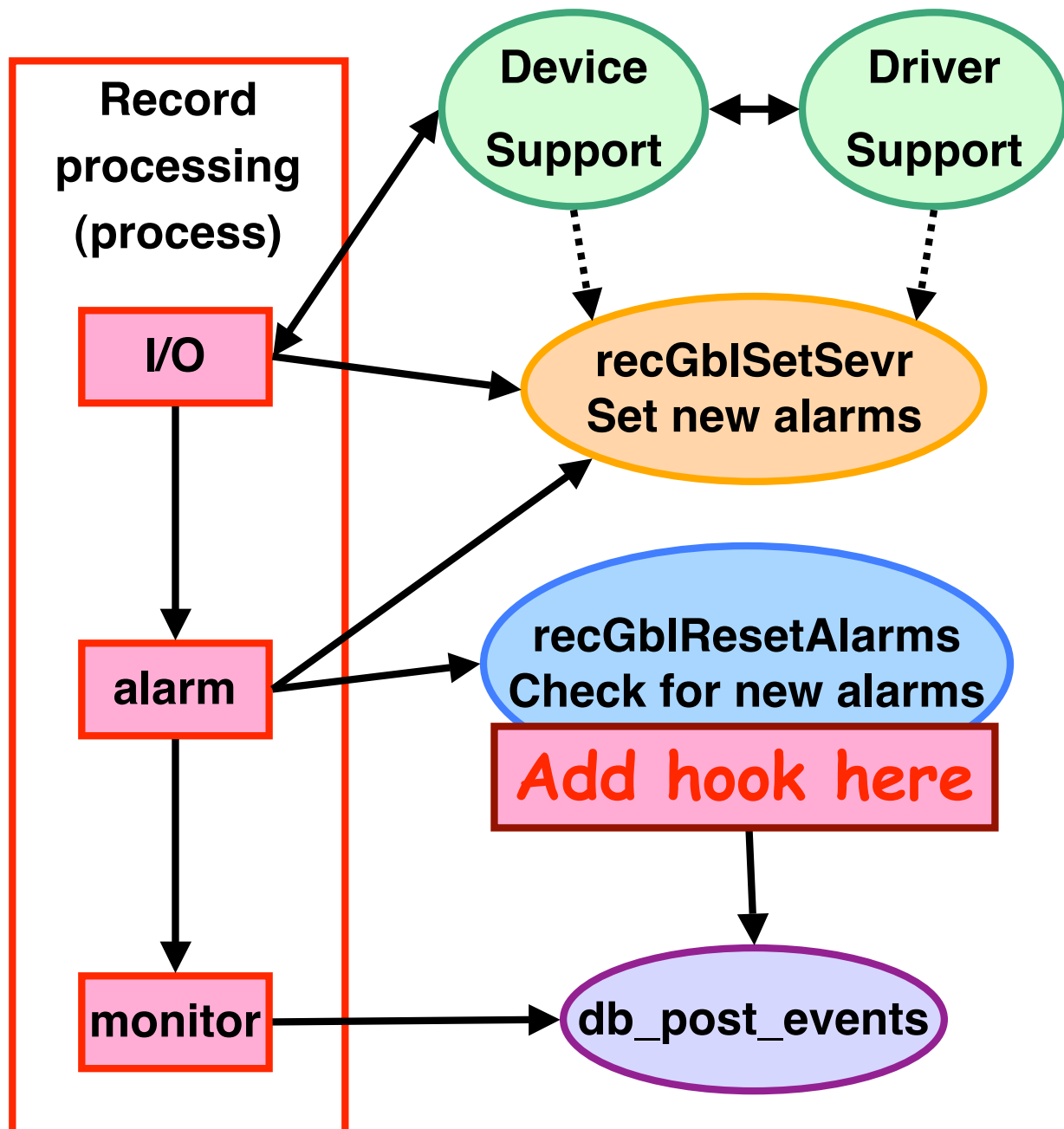
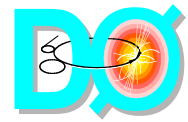


External Hook

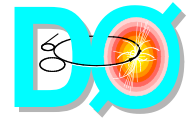


- Follow initHooks
- If extHooks in symbol table
 - ◆ Execute functions stored in linked list
 - ◆ Function arguments
 - State - location in code
 - Record address - data
- Add functions to the list using extHookRegister
- If the hook exists, call it from recGblResetAlarms when the status or severity changes

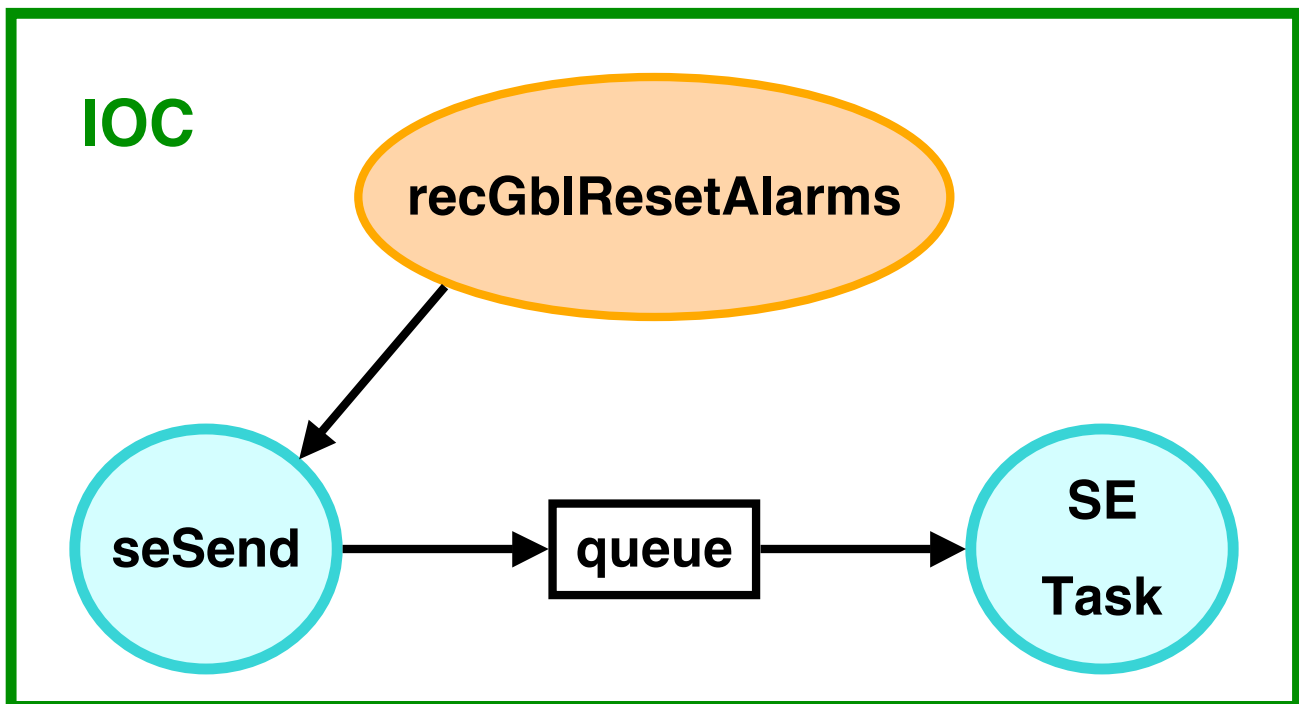
Modified EPICS Alarms

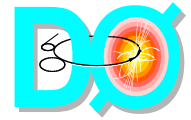


seSend



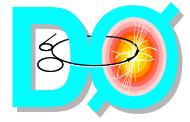
- seSend is our hook function
- Connection to seTask through a POSIX queue
- Send pvnname & volatile values
 - ◆ Value, Severity, Status





- Maintain connection to SE Server
 - ◆ Initiate connection
 - ◆ Reestablish lost connections
- Create, format, and send alarm messages to server
- Add common EPICS fields
 - ◆ Message type (info, alarm)
 - ◆ Priority – importance in DAQ
 - ◆ Alarm message type
 - ◆ Database key
 - for data retrieval in alarm display

Future



-
- Attempt using R3.14
 - ◆ Use the new registration facility
 - ◆ Keep an eye on performance